# Curriculum Web Planning Tool: Extending Early Mathematics Knowledge Through Planned Learning Experiences Around Books

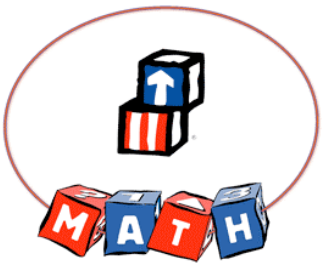
Books offer teachers a powerful tool for expanding young children's mathematical vocabulary and for supporting their developing mathematical knowledge. The learning does not need to stop with books! Teachers can plan other experiences to extend the mathematical concepts that are introduced when reading a book. The curriculum web planning tool is a useful way to carefully consider other classroom opportunities to deepen young children's mathematical knowledge.

This packet contains four curriculum web examples and a blank curriculum web, which early childhood education staff can use for planning. Refer to *Finding the Math in Books* for examples of children's books that are rich in mathematical content. Use the curriculum web planning tool to record additional math experiences for the children in your classroom.

The four curriculum webs in this packet are based on these books:

- *Chicken Soup with Rice: A Book of Months* by Maurice Sendak
- *Go, Dog. Go!* by P. D. Eastman
- *Round Is a Mooncake: A Book of Shapes* by Roseanne Thong
- *The Very Hungry Caterpillar* by Eric Carle

A brief description of each book is included on the following page.

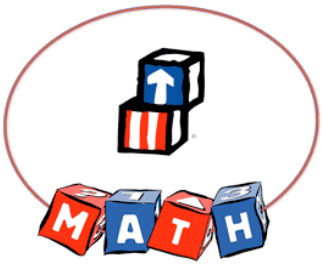


***Chicken Soup with Rice: A Book of Months* by Maurice Sendak**
Although often described as a book to teach the months of the year and seasons, this book has many math concepts. As children hear all the different things to do with chicken soup with rice each month, they can be introduced to spatial vocabulary—position words—about where to drink chicken soup or where the soup bowls are found. The repeating words "once" and "twice" provide an opportunity to learn about the small numbers "one" and "two." Children are exposed to pattern by hearing the same phrase at the end of each month's rhyme about chicken soup with rice.

***Go, Dog. Go!* by P. D. Eastman**
This is a fun-filled book with lots of colorful illustrations and simple, repeating phrases describing dogs doing all kinds of activities. While following the dogs' different adventures, children can count, compare sizes, and learn about spatial directions and speed.

***Round Is a Mooncake: A Book of Shapes* by Roseanne Thong**
In this brightly illustrated story told in simple rhyme, a young Chinese girl identifies the shapes of many objects found in her home and neighborhood. The objects are a wonderful mix of things familiar and, for some readers, not so familiar—for example, square boxes that contain pizza or dim sum. In addition to providing opportunities for children to identify shapes, the book is an introduction to the Chinese culture.

***The Very Hungry Caterpillar* by Eric Carle**
This classic children's book tells the story of a caterpillar and what he eats in the one week before he spins a chrysalis and, two weeks later, turns into a butterfly! In addition to providing many opportunities for children to practice counting and comparing size, the story line offers other topics that can be used for planning other mathematical learning experiences in the classroom.



## Math Ideas

**Number and Operations, Patterns and Measurement**

(counting, comparing "how many," combining, separating, repeating sequence, quantity, time)

### Small Group Activity

Read the book to children emphasizing the chanting rhythm of the text. Each page includes the words "**once**" and "**twice**." Ask the children to clap **once** and **twice** each time you read these words. Notice the repeating pattern for each month ". . . once . . . twice . . . chicken soup with rice." Although the seasons of the year are not stated, they are pictured and could be mentioned in a general way.

**Questions or Comments:**

*What happens on every page of this book?*

*It's snowing out. What season of the year is it?*

### Dramatic Play Area

Stock the dramatic play area with materials for "cooking" soup: pots, cooking spoons, measuring cups, empty boxes of rice and broth, apron, chef's hat, kitchen timer, small bowls, and spoons so that the children can pretend to make the soup from a recipe. Post a recipe for chicken soup with rice and read it aloud with the children.


*5 cups of broth*


*1/2 cup of rice*


*Simmer until rice is cooked*

**Questions or Comments:**

***How many** cups of broth do we need?* Encourage the children to show 5 with their fingers. Together count aloud the number of cups of broth as they pretend to measure and pour ingredients into the pot.

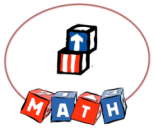
***How much** rice do we need?*

***How long** should we cook the soup?*

***Do we have enough** bowls and spoons for everyone to have **one of each**? If not, **how many** do we need?*

## Finding the Math in . . .

*Chicken Soup with Rice* by Maurice Sendak




### Family Bulletin Board

We have been reading and pretending to cook *Chicken Soup with Rice.* Ask your child to show you our recipe for chicken soup with rice. Maybe you can make chicken soup with rice at your house. Your family recipe might be different from ours. When you are cooking, use your kitchen timer and talk about how long it takes to cook the soup.

**New words to talk about**:

*Once* and *twice*

*Simmer*

*Measurement words (cups, half cup)*

### Art Area/Small Group Activity

Have each child draw a soup bowl on a piece of colored paper. Tell a story: *A grandmother made chicken soup with rice for her children. But she didn't have her glasses on and spilled some of the rice outside the bowl.* Give each child five grains of pretend rice such as Styrofoam kernels to glue inside or outside the bowl.

**Questions or Comments:**

***How many** grains of rice are **inside** the bowl? **How many outside**?*

***How many** rice grains there are altogether* (**inside** and **outside** the bowl)*? Look at all the bowls. Who has four **in** and one **out**? Who has three **in** and two **out**? They all make five.*

### Sand/Water Play Area

Put cooking pots and other containers of various sizes (measuring cups, table-spoons, teaspoons, etc.) in the sand/water play area. Encourage the children to count how many cupfuls or spoonfuls of sand or water they use to fill different containers.

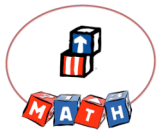
**Questions or Comments:**

***How many** cups of sand does it take to fill up the pot?*

***How many** cups of water do you think it will take to fill this bowl?*

## Math Ideas
## Geometry and Spatial Sense, Patterns
(directionality, order, positions of objects, opposites, shapes, repeating sequence)

# Finding the Math in . . .
*Go, Dog. Go!* by P.D Eastman




### Block Area
Put out blocks, toy cars, road signs, and other accessories in the block area. Suggest the children set up a track that shows how the dogs in the book might drive to the dog party. Talk with the children about their block constructions using the spatial vocabulary from the book and other spatial terms such as **beside** and **next to**.

**Questions or Comments:**

*You are driving the car **under** the bridge and **over** the ramp.*
*You are going **fast**. What would it look like to go **slow**?*

### Small Group Activity
Read the book to the children, emphasizing the math vocabulary and opposites presented in the text. Encourage children to use the spatial vocabulary as you discuss the book (**around**, **again**, **fast**, **away, on top**, **up/down**, **in/out**, **over/under**). After children become familiar with the book and vocabulary, ask them to describe where dogs are as you read together. Point out the shapes in the illustrations. Call attention to the repeating sequence: "*Hello!*" *"Hello!" "Do you like my hat?" "I do not." "Good-by!" "Good-by!"*

**Questions or Comments:**

*Which dogs are going **up**? **Down**? **In**? **Out**?*
*Where are the dogs now?* (**under** the tree, **in** the water, etc.)
*What **shape** do the wheels look like?*
*What do you think she is going to say now? What will he say?*

### Family Bulletin Board
We have been reading *Go, Dog. Go!* and learning about position words. Try making an obstacle course at home. For example you can use a wastebasket to walk **around**, a broom to step **over,** and a table to crawl **under**. As you bring your child to school, talk about the routes you take: *We go **down** the hill and turn **next to** the gas station.*

**New words to talk about**: *up/down, in/out, over/under, top/bottom, around, next to, beside, circle, triangle*

### Art Area/Small Group Activity
Help the children make their own hats like the dog party hats in the book. (Go to http://theparentsite.com/family/paperhats.htm for directions for making hats.) Have the children decorate their hats. Read the book, and put on the hats at the end of the story when the dogs arrive at the party. Together recite the sequence of "Hello, hello, etc."

**Questions or Comments:**

*We are folding the paper from **bottom** to **top**. Now we are making a fold in the **middle**. Look! What shape is your hat?*

### Outdoor Area
Set up an obstacle course outside with objects such as big cardboard boxes, tables, traffic cones, ropes, and hula hoops that children can move over, under, around, up and down, and in and out of. Start with three or four tasks. First, go through the course yourself and describe what you are doing; then have the children try.

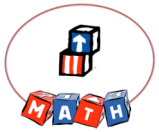
**Questions or Comments:**

***First**, I step **over** the jump rope and then walk **around** the cone.*
*Pilar is going **into** the box. Now she is coming **out** of the box.*
*You are going **under** the table.*

**Math Ideas**
**Geometry and Spatial Sense**
(shape names, shape attributes)

## Finding the Math in . . .

*Round Is a Mooncake: A Book of Shapes*
by Roseanne Thong




### Block/Manipulative/Art Area

Take photos of your community. Enlarge and hang them in the block area. Stock the area with blocks and items that are the same shapes as those in the photos. Discuss the various shapes in the photos and the children's structures/pictures.

**Questions or Comments:**

*The door in your building is the **same shape** as the door on Bob's Market. What is that shape called? The end of the roof on this building looks like a **triangle**. Do you have any blocks that you could use to build a roof like it?*

### Art Area

The art area provides many opportunities for children to explore shapes. Display posters of paintings with geometric shapes. Talk about the attributes of the shapes in the pictures (e.g., **sides, corners, curved/straight/leaning**).

- Gadget Printing: Give children kitchen gadgets of various shapes to dip into non-toxic paint or dye and print on pieces of old bed sheets.
- Mosaics: Ask tile shops for small discarded ceramic tiles. Let children fit and glue tiles together to fill shoebox lids.
- Shape Tracing: Cut shapes out of the middle of large plastic lids. Let children trace inside the "hole" and around the piece that was cut out with colored chalk on the sidewalk.

**Questions or Comments:**

*Feel the **straight** edges and the **points** on the **triangles** in your mosaic. What is different about the shape you printed with the rim and the one you printed with the side of the cup?*

### Family Bulletin Board

We have been reading *Round Is a Mooncake: A Book of Shapes* and learning about shapes. The little girl in the story identifies shapes of familiar objects in her home and neighborhood. Take a shape walk with your child around your home and neighborhood to talk about the shapes you see. Use **shape names** or descriptions when talking with your child. *You can play with your toys on the **square** blanket. Push the **circle** button to start the CD player.* Do a collage with shapes.

### Small Group Activity

Read the book several times to let the children enjoy the poem and rhyming pattern and notice the objects. Encourage children to talk about what they see. Next play "Which Shape Does Not Belong." Place two or three matching shapes and one different shape on a tray.

**Questions or Comments:**

*Which shape **does not belong**?* Let children explain why the shape does not belong.

### Manipulatives

After reading *Round Is a Mooncake*, make a lotto game with pictures of familiar objects in the children's homes to match with silhouette shapes (e.g., a tortilla and a **circle** silhouette or a book and a **square** silhouette). Encourage the children to talk about the shape of the object and its attributes.

**Questions or Comments:**

*The circle is **curved**.*
*The **square** has four **straight** sides and all are the same **length**. Which shapes are the **same**? How are they the **same**?*

## Math Ideas

**Number and Operations, Measurement**

(counting to five, comparing "how many," addition plus one, tiny/big)

## Science/Discovery Area

Create a butterfly habitat by gathering leaves, sticks, and plants that are conducive to nurturing caterpillar growth. Place caterpillar eggs into the habitat. Put magnifying glasses and blank journals next to the habitat. Encourage children to watch the stages from egg to caterpillar to chrysalis to butterfly and draw what they see.

**Questions or Comments:**

Talk about the size of the butterfly in each stage from **tiny** to **big**. ***How many*** *eggs were there?* ***How many*** *caterpillars?*

## Snack Time

Ahead of time, cut up five different fruits into bite-sized pieces and put them into separate bowls with serving spoons. Post a recipe for fruit salad and read it aloud with the children. (Include a drawing of each item.)

1 apple 

2 pears 

3 plums 

4 strawberries 

5 oranges 

Pass out an empty bowl to each child. Instruct them to make their very own fruit salad using the recipe.

**Questions or Comments:**

***How many*** *pieces of orange did you eat?*

*Do you have* ***more*** *pieces of plums or apples in your fruit salad?*

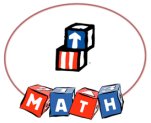
Make comments about putting **one more** piece of fruit in the bowl. Compare children's fruit. *Who has* ***more*** *pieces of apple? Who has* ***less?*** *Who has the* ***same number?***

# Finding the Math in . . .

*The Very Hungry Caterpillar*

by Eric Carle

(insert hyperlink to *Finding Math in Books*)




## Family Bulletin Board

We have been reading *The Very Hungry Caterpillar* and are learning about the numbers one through five. Ask your child to read you our class book, called *The Very Hungry Children,* and find out what your child ate for snack one day.

Encourage your child to count objects (up to five) using number words and fingers to answer the question "**How many?**"

## Small Group Activity

Make a class book called *The Very Hungry Children*. Prepare preprinted pages with this sentence: "One day (child's name) ate (number of pieces up to five) pieces of (fruit name)." Have children dictate words that complete the sentence and draw pictures of themselves eating the fruit. Sort the pages by number (placing all the pages that have one piece of fruit first, followed by two pieces, etc.). Bind the pages together in a book and place it in the library area.

## Small Group Activity

Read *The Very Hungry Caterpillar* and emphasize counting and comparing. **Count** the items that the caterpillar eats each day. When children are learning to count, encourage them to count two or three items. Ask preschoolers to show "how many" by **showing the same number of fingers. Compare the amount** the caterpillar eats each day. Point out the pattern of **one more** fruit each day.

**Questions or Comments:**

***How many*** *pears did the caterpillar eat?*

*Did the caterpillar eat* ***more*** *plums or strawberries?*

**Math Ideas**

**Finding the Math in . . .**